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[REDACTED] 0920

Air

5 JUN 1958

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: Chief of Station, **[REDACTED]**

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: **[REDACTED]**

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- Operational/Personal Equipment
- Comments on **[REDACTED]** 1693

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REF A: SAPC 26569
REF B: **[REDACTED]** 1693

The following comments, related by paragraph to Ref B, are presented in an effort to clarify report SAPC 26569. Actions outlined in REF A are resultant from an aggregation of incident and unsatisfactory reports, present as well as anticipated requirements and R & D efforts forwarded to headquarters from project detachments, FOG and other sources credited by the project. Reports relative to contents as in REF A will continue to be distributed to project detachments in confidence that questions, rebuttals and contributions, as aptly presented in REF B, will lead to improved equipment and procedures.

a. The ejection seat modification is such as to facilitate exchange between ejection and standard seats in every aircraft. In addition to test, proficiency and training flights, the ejection seat will be installed for ferrying flights as well. However, it is not to be installed for flights involving actual penetrations. This is due to the weight penalty of 33 lbs. resulting in a significant reduction of altitude.

a.(1) We are in complete agreement relative to the desirability of incorporating an auto wind and lock inertia reel type mechanism on the ejection seat. The physiological hazards pointed out in your report had previously been discussed with the U. S. Navy having used the seat for evacuation without reported injury due to lack of this device (they use the face curtain trigger mechanism) and the FOG at Del Rio AFB having this seat but without ejection experience. Both groups reflect apathy in the inertia reel, insisting that the two second delay from time of delta ring manipulation to actual firing to be an adequate span permitting the pilot to assume ejection position. We disagree that the pilot will be capable of assuming the ejection position under stress environment and further choose not to rely on the pilot's memory to lock the shoulder harness in time of duress preparatory to forced landing. We had requested IAC to devise an automatic

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revised and lock - plus impact lock mechanism for project seats. Though this device may not be developed in time for seat mounting prior to seat kit distribution, we may look forward to it's eventual availability.

a.(2)(3) The dimensions of the new seat pan is dictated by the size of the seat pack wall in the ejection seat. Unfortunately due to the dimension of the cockpit, only the smallest of ejection seats could be adapted to the aircraft. The decision to modify all seat packs to the small configuration though the old seat will continue to be utilized on penetration missions was based in the light of two significant factors. Standardization is only second in importance. In consideration of the comparative fatigue factor inherent in the T-33 seat as compared to the relative comfort quotient of the standard U-2 seat, it is essential to consider the contour fitted wall padded surface of the U-2 seat pack as against the hard single planed surface of the seat type parachute which the pilot contacts. It now becomes apparent that we are comparing unlike items. Discussions pursued by developmental personnel resulted in the assumption that a T-33 sized seat pan contoured to the U-2 seating surface and adequately padded with a medium density foam pad overlapping the frontal edge would provide comfort comparable to that provided by the old type seat pan.

As outlined in Hq report WEF A paragraph 5, the first modified seat pane assigned to FOU did not meet with predicted comfort criteria. Specific discomfort factors reported were not referenced to the elimination of 1 1/2" of non-contact surfaces on each side of the new pan. The manufacturer has been informed of the shortcomings of the new pan and action to remedy is underway. The first new pane to be accepted by the project will be assigned to WEF IV. The efforts of the physiologist and pilots of that organization will be joined to improve comfort and other aspects of the seat assembly. Their recommendations will be incorporated in the seat pane that are destined for field assignment so as to provide your pilots with the ultimate in possible and general desirability. In consideration of the infrequent embarrassments resulting from R & D efforts that do not fully satisfy objectives, the manufacturer has been informed to return to the depot old seat pane made obsolete by the ejection seat modification. These pane will be available to pilots who have objectively attempted to accept the new seat pan yet find it unacceptable for penetration flights.

b.(1) Schematic drawings previously submitted to Hq in regards to redesign of aircraft and seat pack oxygen components to provide emergency measures have not been acceptable. Present system "weak spots" and pilots' desires (virtually as you have outlined) have been provided to LAC to assist them in effecting redesign. LAC has indicated that they presently have a design that will undoubtedly meet with the approval of everyone concerned. They have been asked to forward photos and specifications of the improved system to Hq. These will be distributed to you for comments and suggestions prior to final action by Hq.

b.(2) An ample supply of F-340-4 hoses (regulator to "T" block) 22' long have been requisitioned to satisfy field needs. These hoses will be

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available from the depot at your request on or about 19 June 1958. A new stock number will differentiate between the 16 and 22 inch hoses. Both types are to be maintained on depot inventory.

b.(3) The new design for the breathing and oxygen hose couplings will be forwarded to you via courier. In addition we would like to forward a prototype connector as soon as one is made available to us. It has been proven on repeated hook up performances at POC that the male connector can be connected so that the lock pins ride on the flat surface of the female connector lock pin groove. In this event, the safety clip can be installed without offering security of connection. Also, due to the beveled shoulder of the male connector, (forward of knurled section) it is possible to disassemble a properly made connection with the safety clip in position due to the clip riding up the shoulder bevel. In an effort to eliminate potential inadvertent disconnection, the redesigned male connector will have a 90° shoulder and a spring of increased tension. The female connector will be without the flat surface in the lock pin groove. It is reasonable to assume that the present assignment of high caliber P. E. tests in the project negate the possibility of a malconnection. However, this equipment is found to have application in organizations outside the project where the impossible frequently occurs. Our endeavors are to reduce the complexity of hook up and increase the reliability of this equipment.

c. The determination as to cause of malfunction of the exhalation valve diaphragm (1) was made by WABC. The tests and test equipment for ozone deterioration evaluation are available at WABC. The new silicone diaphragm exhalation valves of recent availability to the project have been tested on this equipment. It is indeed pleasant to report that as a result of ozone tests performed simultaneously on silicone and latex diaphragms, that the silicone remained unaffected while the latex showed definite signs of veining and pitting. We have queried Lovelace clinic about test data relative to [redacted] ozone experiments. They inform us that this effort was discontinued by them and turned over to WABC.

d. [redacted] bladder incident occurred post compliance of all prescribed test on testing devices. Realizing the obvious inadequacy of previous prescribed tests alone, items outlined in REF A, paragraph 10, Recommendations 1-3 were added to augment our present procedures.

f. It is apparent that earlier designs of a heavy gauge plastic glare shield were not disseminated to the field - hence Rgs' duplication of efforts. Our attempts with rigid plastic for glare shields posed the problems of difficult helmet mounting and a certain degree of visual distortion due to the shield not conforming to the face piece curvature. The cohesive non-rigid tinted plastic forwarded to you in March seemed to solve both problems and still provide adequate glare protection. The manufacturer recommended application method is to moisten the plastic. (However, we have determined that it adheres equally well when dry and can be mounted or removed during flight at pilot's discretion.)

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25X1A g. Necessary information to procure the new type flying boot is being secured. This boot [REDACTED] is custom made and requires foot measurements and outline. The manufacturer has been requested to furnish foot sizing order forms. These will be distributed to you.

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i. D/MAT. informs that two portable type cockpit air conditioners have been purchased for your organization. These are presently at [REDACTED]. We are confident that you will receive these items within a 30-day period. It appears from Ref i. that an air conditioned pilot transfer vehicle would be of limited value to your pilots. After study of the pilot transfer vehicle photographs and specifications forwarded to you recently, and in anticipation of cockpit air conditioners, Hqs would like to know if you still anticipate a requirement for the vehicle.

j. Incident reports as well as a long history of flight feeding orifice leakage led to the permanent sealing of this facility. Project as well as Air Force requirements for an acceptable flight feeding design remain unfulfilled. This issue has been discussed with Gen. Flickinger of Hqs AHSB who has offered his assistance. Any designs, recommendations or information that you may have could be relayed to him for consideration in forthcoming attempts.

SIGNED

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[REDACTED]
Director of Operations

DPS/DCI/RJT:bhb

Distribution:

- 1 & 2 - Addressee
- 3 - Gen Flickinger
- 4 - SA/PD/DCI
- 5 - Dep Dir, DPS/DCI ✓
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